REMARKS/ARGUMENTS

This Amendment is in the newly approved Revised Format such that each section of this Amendment begins on a separate sheet.

Claims 1-11 remain pending in the present application. Applicants and their attorney hereby confirm the election of Claims 1-8 for further prosecution at this time in the present application. Thus, Claims 1-8 are currently under examination and Claims 9-11 have been withdrawn from consideration. Applicants hereby reserve their right to file one or more divisional applications directed to one or more of withdrawn Claims 9-11. Applicants also hereby reserve their right to request rejoinder of one or more of withdrawn Claims 9-11 upon the allowance of any of Claims 1-8.

Claim Rejections Under 35 U.S.C. § 103(a)

On pages 4-5 of the Office Action, the Examiner rejected Claims 1-8, under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under U.S.C. § 103(a) as being unpatentable over Heibel et al. (WO 00/14123). The Examiner has also rejected Claims 1-8, under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under U.S.C. § 103(a) as being unpatentable over Heider et al. (U.S. 5,087,676), GB 607735, Tanaka et al. (JP 02064144), Bauer et al. (DE 2015296) or Elgood et al. ("The Emulsion Polymerization of Vinyl Acetate by Redox Initiator", Br. Polym. J. 1973, 5, 249-258). Applicant respectfully traverses these rejections for the reasons which follow.

As recited in amended independent Claim 1, one aspect of the present invention relates generally to a process for preparing an aqueous dispersion of plastics additive polymer particles. More particularly, the process of amended independent Claim 1 includes the step of emulsion polymerizing one or more ethylenically unsaturated monomers in an aqueous medium in the presence of a free radical redox initiator system. Furthermore, as recited in amended independent Claim 1, the free radical redox initiator system comprises an oxidizing agent, a reducing agent, and from 0.01 to 5.00 ppm, based on monomer weight, of a mixture of iron and copper metal ion species.

Another aspect of the present invention, as recited in amended independent Claim 5, relates generally to a polymeric composition for use in modifying the properties

of thermoplastic resins. More particularly, the polymeric composition of amended independent Claim 5 comprises polymer particles prepared by emulsion polymerizing one or more ethylenically unsaturated monomers in an aqueous medium in the presence of a free radical redox initiator system. Furthermore, (similar to Claim 1) as recited in amended independent Claim 5, the free radical redox initiator system comprises an oxidizing agent, a reducing agent, and from 0.01 to 5.00 ppm, based on monomer weight, of a mixture of iron and copper metal ion species.

Thus, as recited in both amended independent Claims 1 and 5, the present invention involves plastics additive polymer particles, as well as a process of making them, which are intended to be added to thermoplastic resins for the purpose of modifying the characteristics of the resins. Moreover, the present invention includes the required feature that the free radical redox initiator system includes, among other things, both iron and copper metal ion species present therein, in amount of from 0.01 to 5.00 ppm based on the monomer weight. It is noted that independent Claims 1 and 5 have been amended by the foregoing amendments solely for the purpose of clarifying that both iron and copper metal ion species are present in the free radical redox initiator system. In this regard, it is further noted that the examples of the present invention which are provided in the present specification demonstrate the inclusion of both iron and copper metal ion species in the free radical redox initiator system and the benefits achieved thereby in the characteristics of the resulting plastics additive polymer particles. At page 7, lines 27-28 of the present specification, Applicants explain that the "redox reactions of the present invention appear to be catalyzed by the combination of iron and copper metal ion species" (emphasis added). Thus, it is believed that there is a synergistic effect when both iron and copper metal ion species are present in the initiator system used to prepare the plastics additive polymer particles in accordance with the present invention, as compared to when iron, copper, or any other metal is used alone.

It is respectfully submitted that none of the references cited by the Examiner (i.e., Heibel et al., Heider et al., GB 607735, Tanaka et al., Bauer et al. and Elgood et al.), whether taken alone or in combination, anticipate or make obvious the present invention as recited in either of amended independent Claims 1 or 5, for the reasons which follow.

It is respectfully noted that a prima facie case for obviousness requires both a suggestion for modifying the teachings of a particular reference such that the claimed invention is achieved, as well as a reasonable expectation that such modification would be successful. Both the suggestion to modify, as well as the expectation of success, may be found in either the cited reference(s) or based upon the understanding of ordinary persons in the relevant art.

Heibel et al. does not relate to the same or analogous field as the present invention recited in Claims 1 and 5. More particularly, whereas the present invention relates to plastics additive polymer particles for modifying the characteristics of thermoplastic resins, Heibel et al. concerns the preparation of the thermoplastic resins themselves from their corresponding monomer constituents. More particularly, Heibel et al. teaches the use of an initiator system to treat an aqueous dispersion of polymers for the purpose of reducing the quantity of residual monomers in the dispersion after polymerization. Thus, Heibel et al. does not concern preparation of plastics additives for addition to the resin, as in the present invention. In addition, Heibel et al. teaches that the initiator system used to prepare the resin includes a multivalent metal ion, such as Fe, Cu, Mn, V, Ni, Co, Ti, Ce or Cr (see page 4, lines 30-31). None of the examples or claims of Heibel et al. disclose the use of more than one of the proposed multivalent metal ions in the same initiator system. Nor does Heibel et al. appear to suggest anywhere in its disclosure, examples, or claims, the use of more than one metal ion species in the initiator system. Since Heibel et al. relates to a different aspect of the relevant field and fails to disclose or teach the use of more than one of the proposed multivalent metal ions in the same initiator system, it is respectfully submitted that Heibel et al. neither anticipates or makes obvious, the process of the present invention of Claim 1, nor the polymeric composition of the present invention of Claim 5, which both require the inclusion of both iron and copper metal ion species in the initiator system used to prepare the plastics additive polymer particles.

With reference to the remaining cited documents (i.e., Heider et al., GB 607735, Tanaka et al., Bauer et al. and Elgood et al.), while the Examiner states that each of them teach processes for emulsion polymerization using redox initiator systems that include either iron or copper metal ions, this assertion misses one of the important

distinguishing features of the present invention, i.e., that none of these documents teach the use of both iron and copper metal ions in the same initiator system for the production of plastics additive polymer particles.

More particularly, Heider et al. teaches the synergistic effects of using a redox initiator system including iron salt along with another, corresponding redox initiator system including vanadium salt for the production of polymers from olefinically unsaturated monomers. No mention is made or suggested relating to the possibility that other metal species besides vanadium would be beneficial or show similar synergistic effects when combined with iron metal ions in the same initiator system. Thus, Heibel et al. cannot by itself anticipate, nor does it expressly suggest, the present invention in which both iron and copper metal ion species are included in the initiator system. Moreover, having specifically selected and claimed the combination of iron and vanadium salts in its initiator system, without mention of any other metal species, the disclosure of Heibel et al. would not suggest to a person of ordinary skill in the art, based merely on the understanding of such a person, that copper would likely be a successful substitute for the vanadium salts. Thus, it is respectfully submitted that Heibel et al. does not render the present invention, as recited in amended Claims 1 and 5, obvious.

Bauer et al. relates to the preparation of vinyl chloride resin using a catalyst redox system which includes, among other things, copper or iron salts. All of the examples provided in Bauer et al. include either copper or iron ions in the redox system, but not both. Although Bauer et al. includes the statement that it is "possible" to use mixtures of copper and iron salts or metals, there is no further discussion of this possibility and absolutely no suggestion, or even speculation, that using iron and copper together would provide any benefits above and beyond the results achieved through the use of either species separately in the redox system. To the contrary, the specification of the present invention discusses (see page 4, lines 16-20 and 24-28) and demonstrates (see Table 2, showing higher molecular weight polymer particles produced in accordance with the present invention than by using redox initiator systems having only iron or copper, or having both iron and copper in an excessive amount) the improved plastics additive polymer particle products resulting from using both iron and

copper metal ion species in accordance with the present invention, as recited in amended independent Claims 1 and 5. Thus, it is respectfully submitted that Bauer et al., whether taken alone or in combination with other cited documents, does not anticipate nor make obvious the present invention of Claims 1 and 5.

With reference to the remaining cited documents, i.e., GB 607735, Tanaka et al. and Elgood et al., they all teach the use of initiator systems including a metal species, such as titanium, iron, vanadium, cobalt, nickel, manganese or copper. More particularly, GB 607735 teaches the use of an initiator system that includes a heavy metal species to polymerize monoethylenic compounds, without any mention of the possibility of including more than one metal species in the initiator system and providing no examples which include more than one heavy metal species in the initiator system. Tanaka et al. teaches the preparation of a resin composition using an initiator including a transition metal ion and provides examples using only copper as the transition metal ion, without any mention of the possibility of including more than one type of transition metal ion. Lastly, it is noted that the purpose of the experiments discussed in Elgood et al. was to compare and contrast the efficacy of various metal ions when used in the redox initiator systems, for production of polymers from vinyl acetate, with one another and the possibility of using more than one metal ion in the same initiator system is neither discussed, nor suggested in this document. Elgood et al. would assist a person of ordinary skill in the art to select which single metal species to use from among the list of metal species investigated, but would not be helpful to select which combination of metal species to use in an initiator system.

Thus, none of the remaining documents (i.e., GB 607735, Tanaka et al. and Elgood et al.) teach or suggest the use of more than one metal species together in the same initiator system to produce polymers having improved characteristics over those prepared with initiator systems including only one metal species. On the other hand, the present invention, as recited in amended independent Claims 1 and 5, requires the use of iron and copper metal ions in the initiator system used to produce superior additive polymer particles. Thus, none of GB 607735, Tanaka et al. and Elgood et al. either anticipate, or make obvious, the present invention of Claims 1 and 5, whether

taken alone or in combination with one another or the above-discussed documents cited by the Examiner.

Based upon the foregoing discussion and explanation, it is believed that none of the documents cited by the Examiner, whether taken alone or in combination with one another, anticipate or render obvious the present invention, as recited in amended independent Claims 1 and 5. Thus, it is believed that Claims 1 and 5 are presently in condition for allowance. In addition, since Claims 2-4 and 6-8 depend, directly or indirectly, from either Claim 1 or Claim 5, Claims 2-4 and 6-8 are also believed to be in condition for allowance at this time.

Conclusion

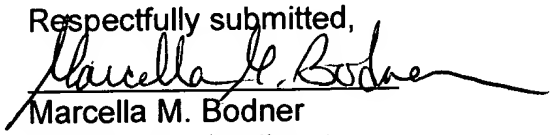
Applicants and their attorney hereby respectfully request re-examination and allowance of Claims 1-8. If, however, there remain any open issues which the Examiner believes can be resolved by a telephone call, the Examiner is cordially invited to contact the undersigned attorney.

An extension fee of $110 is believed to be due for a one-month extension of time within which to file this Amendment. A Petition for Extension of Time accompanies this Amendment and includes a deposit account charge authorization to cover the aforesaid $110 extension fee. If any addition fees, including petition and extension fees, are due in connection with the submission of this Amendment, the Commissioner is hereby authorized to charge them, as well to credit any overpayments, to Deposit Account No. 18-1850.

An Associate Power of Attorney is also being submitted herewith to authorize the undersigned attorney to proceed with prosecution of the present application on behalf of Applicants and their assignee.

Lastly, please associate the present application with **Customer Number 21898**.

Respectfully submitted,



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